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*The Oil Chemist's Handbook.* By ERASTUS HOPKINS, A.M., B.Sc., Chemist in charge of U. S. Laboratories, Boston, Mass. New York, John Wiley & Sons; London, Chapman and Hall, Limited. 1900. Pp. viii + 72.

This book is intended as a practical laboratory handbook for use in the examination of commercial oils and fats. Concise and satisfactory directions are given for the execution of the ordinary quantitative determinations which are made with materials of this class. The special and most valuable feature of the book, however, consists in the full tables which are given, and in their excellent arrangement. These include tables of general properties, solubility, adulterants and of constants. The tables of constants are duplicated by giving, first, a table arranged with reference to the oils, giving all of the important constants for each oil, and then tables for each constant, as saponification value, iodine value, Reichert-Meissl value, etc., with the oils arranged according to their numerical values for the given constant. The tables appear to have been prepared very carefully and the book is a very valuable one for those working in this field.

W. A. N.

*The Calculations of Analytical Chemistry.* By E. H. MILLER, Ph.D., Instructor in Analytical Chemistry and Assaying in Columbia University. New York, The Macmillan Co. 1900. Pp. 183.

As the author states in the preface: "This text-book is intended for use in scientific schools and colleges, in connection with courses in analytical chemistry, and aims to give a logical treatment of the calculations required by an analyst." "The object has been to furnish a text-book, which shall give the necessary information concerning those important chemical calculations which every student should thoroughly understand before taking up advanced work." "Formulæ have been avoided, except in the last chapters, so that the student shall consider each problem individually and solve it from a knowledge of chemical laws instead of substituting in formulæ for different cases."

The subjects taken up in this book are as follows: Calculations of chemical equivalents and

atomic weights; of formulæ and percentage; of mixtures having a common constituent; calculations from equations; calculation and use of factors; calculations of volumetric analysis; of density of solids and liquids; of gases; of calorific power and electric and electrolytic calculations for direct currents. The method involved in each case is clearly explained with example, and a number of problems for solution are given in each chapter. The author has brought together here in a compact form some of the most important calculations of analytical chemistry. Much of the material would be inaccessible to a student or perhaps worked out from formulæ given without any explanation of the principles involved. A number of tables are also given of values used in the calculations.

J. E. G.

#### SCIENTIFIC JOURNALS AND ARTICLES.

*The American Journal of Physiology*, December, has as its leading article 'The Reactions of Planarians, with and without Eyes, to Light,' by G. H. Parker and F. L. Burnett. They found that planarians without eyes tend to turn away from their course when directed towards the source of light and to keep in it when directed away from the source. This reaction, however, is less precise than in planarians with eyes. Planarians with eyes move more rapidly than those without eyes, and those moving away from the light than those moving towards it. Anne Moore contributes a paper on 'Further Evidence of the Poisonous Effects of Pure NaCl Solution.' According to her investigations pure solutions of the chlorides of Na, Ca, K, Mg, and Li are poisonous. The poisonous effects of a pure NaCl solution may be antagonized by Ca, although Ca is not necessary in itself, for it renders a sugar solution more harmful. K does not antagonize Na, but may antagonize Ca used in small quantities. In weak solutions sugar is as poisonous as isosmotic solutions of NaCl, but in stronger solutions this is not true. Young trout and tadpoles live indefinitely in distilled water, and in salt solutions if Na and Ca ions are in balanced proportions. The 'Influences of Digestion on Animal Heat Processes' are presented in a study by E. T. Reichert. He

concludes that the rise of temperature during digestion (maximal about the fourth hour) is due to an increase of heat production. Since the greatest increase of heat production occurs during the first hour after feeding, the changes in heat production and temperature are not proportional. The most marked effects are produced from a proteid and fat diet, next with proteid alone, and least with fat. R. M. Yerkes continues his work on phototaxis with a study of the reactions of *Daphnia* and *Cypris*. A marked increase in rate of movement of *Daphnia* with increased intensity of light he ascribes to greater precision and quickness of orientation, and in part also to more rapid swimming. In *Cypris* this phenomenon is not so marked, a difference ascribable probably to the greater importance to *Daphnia* of orientation as a factor in rapid movement. Contact with the sides of a pipette appears to render a negative animal positive, but so far as observed the reactions do not change with changes in temperature. For the forms studied light is a sufficiently strong directive agent to lead them into fatal acid solutions.

*The Journal of the Boston Society of Medical Sciences* for October 23d is devoted to the important and interesting 'First Annual Report of the Cancer Investigation Committee to the Surgical Department of the Harvard Medical School.' This summarizes the investigations made during the past year through the bequest of Caroline Brewer Croft. In the 'Introduction,' by J. Collins Warren, the steady increase of cancer is noted, and the 'Statistics of Cancer,' by W. F. Whitney, show that their increase is about the same in New England and Great Britain. Edward H. Nichols gives an account of the work 'On the Etiology of Cancer,' in which he states that attempts to produce cancer in animals by inoculation with tissue from human cancer have so far uniformly failed and that no attempt to isolate an organism from human cancer has succeeded. R. B. Greenough has a 'Report on the Presence of Plimmer's Bodies in Carcinomatous Tissue,' showing that three bodies were present in each of thirteen cases. E. E. Tyzzer describes 'Tumors and Sporozoa in Fishes,' and Edwin A. Locke describes 'The Reconstruction in Wax of a

Nodule of Cancer.' Oscar Richardson also has a 'Report of Culture Experiments made with Carcinomatous Tissue, 1899 and 1900,' which shows that he too was unable to obtain any trace of a specific infecting organism. The report is illustrated with a number of fine plates.

*The American Naturalist* for November is devoted to the invertebrates. W. M. Wheeler describes in detail 'A Singular Arachnid (*Kœnenia mirabilis* Grassi) occurring in Texas' and also 'A New Myrmecophile from the Mushroom Gardens of the Texan Leaf-cutting Ant,' to which the name of *Attaphila fungicola* is given. C. B. Davenport has a paper 'On the Variation of the Shell of *Pecten irradians* Lamarck from Long Island,' considering that those described are either self-adjustments to accidents or sports which represent typical conditions in allied species. A somewhat similar paper is that by Minnie Marie Enteman on 'Variations in the Crest of *Daphnia hyalina*,' in which the author shows that variation is confined to summer forms and that to some extent there is a local tendency to particular variations. Finally W. S. Nickerson discusses 'Double Loxosomæ,' considering that the cases noted were due to fusion and not fission.

*THE Popular Science Monthly*, for November, reprints for its opening article, under the head of 'Oxygen and the Nature of Acids,' the paper 'On Dephlogisticated Air,' by Joseph Priestley and the 'Memoir on the Existence of Air in the Acid of Nitre; General Considerations on the Nature of Acids,' by Antoine Laurent Lavoisier. Simon Newcomb continues his 'Chapters on the Stars,' considering their masses and densities, gaseous constitution, and evolution. H. W. Conn discusses 'Microbes in Cheese-Making,' telling briefly what has been done and what remains to be done in the problem of cheese ripening. Under the title of 'Submarine Navigation,' W. P. Bradley gives an interesting account of the various craft that have been devised for that purpose with somewhat detailed descriptions of the *Argonaut* and *Holland*. George C. Whipple describes 'Municipal Water-Works Laboratories' showing the work that has been done by them and intimating that in

the future they will play an important part. George Stuart Fullerton discusses 'Freedom and Free Will' and William Barclay Parsons treats of 'Chinese Commerce' the gist of which is a plea for what every sensible man knows should exist, a permanent consular service. There are interesting articles under the head of 'Discussion and Correspondence,' 'Scientific Literature' and 'The Progress of Science.'

*Bird Lore* for December comes in an enlarged form and has for its frontispiece a fine photograph from life of a rough-legged Hawk. E. R. Warren describes, with a number of illustrations, 'Photographing Ptarmigans' and this is followed by an article on 'How Ptarmigans Moults,' by Jonathan Dwight, Jr., the best authority on that vexed subject. Bradford Torrey writes of 'Winter Pensioners.' The department 'For Teachers and Students' is devoted, under the caption 'Birds and Seasons' to the first series of papers giving an outline course of bird-study for the year, the present dealing with the months of December and January and with various part of the country from Boston to San Francisco, each article being by a well known authority on the subject. The other and shorter articles under the different departments are too numerous for individual notice, but the Audubon Department is of particular interest.

#### SOCIETIES AND ACADEMIES.

##### NEW YORK ACADEMY OF SCIENCES.

##### SECTION OF GEOLOGY AND MINERALOGY.

At the meeting of the Section on October 15th, Dr. A. A. Julien in the chair, about thirty persons were present.

The Secretary of the Academy nominated for membership Riccardo Pattelli and Charles Lane Poor, and the names were referred to the Council.

The following notes on the results of the summer's work by members were presented:

Gilbert Van Ingen.—Paleozoic Faunas of Northwestern New Jersey.

Mr. van Ingen described the work of the party belonging to the Geological Survey of New Jersey, which, during the past two summers, has been engaged in tracing the outcrops of the paleozoic formations, and collecting fos-

sils. Of this party, Mr. Kummel, the assistant State geologist, traces the boundaries and works out the tectonics, while Dr. Weller, of the University of Chicago, collects fossils at localities indicated by Mr. Kummel. During July, Mr. van Ingen spent a week with this party in the field at Newton. Newton is situated on the shales of the Trenton group, there extensively quarried for slates. To the east is a low ridge of limestone which presents the same appearance as the Barnegat limestone along the Hudson river. The upper part of this limestone has yielded trilobites, probably *Dikellocephalus*, indicating that this portion is of upper Cambrian age. At other localities a trilobite described by Weller as *Liostracus jerseyensis*, shows that the rock there is also Cambrian—probably of the middle or upper division. In the vicinity of Franklin Furnace good specimens of *Olenellus cf. thompsoni* were found at localities described by Foerste. Further to the east of Newton, on the other side of the Cambrian ridge, is a wide belt of Ordovician rocks—Trenton limestone overlaid by a thick series of shales. The limestone contains the typical Trenton fauna,—*Rafinesquina Plectambonites*, *Pterygomelopus*, etc.,—and is very much like that found at Rosetown, Ulster Co., and Rochdale, Dutchess Co., N. Y. The shale has few fossiliferous beds, but occasionally one of the more sandy layers contains *Dalmanella testudinaria*, *Plectambonites* and *Rafinesquina*—the same combination found in the Hudson shales at Poughkeepsie and at Roundout. At one locality was found a fauna with *Ampyx* and *Harpes*. In eastern New York these genera of trilobites are found only in the Chazy limestone, and the discovery is of great interest in that it indicates the presence of this formation at a distance of almost 250 miles south of what has hitherto been recognized as its southern limit. Further to the northwest, along the Delaware river, were found the Silurian and lower Devonian formations. The finest section is seen in the face of the cliff of the old Near-pass quarry, about three miles south of Tristates, where all the formations from the upper Ordovician to the Esopus shale of the lower Devonian appear, with numerous fossils. At Otisville the Shawangunk grit is finely exposed in a large quarry. All the evidence at hand